WHAT IS CLAIMED IS:

1.   An apparatus for extracting pixel data corresponding to an artificial image from an input image signal, said pixel data including multiple items of color data, said apparatus comprising:

motion-information-outputting unit for outputting information of a horizontal moving distance in a line where the artificial image is present on a screen obtained from the input image signal;

motion compensation unit for performing motion compensation on signal components of frames, which are present in timing before and after a current frame of the input image signal, based on the information of the moving distance output from the motion-information-outputting unit;

detecting unit for detecting whether each pixel of a screen obtained from a signal component of the current frame of the input image signal is a pixel that is present at an edge position of the artificial image, based on the signal component of the current fame of the input image signal and the signal components, which have been compensated in terms of motion by the motion compensation unit, of the frames which are present in timing before and after the current frame of the input image signal;

edge pixel extractor for extracting pixel data corresponding to the pixel of the edge position of the artificial image among items of pixel data constituting the signal component of the current frame of the input image signal, based on a detection result of the detecting unit;

histogram processor for creating a histogram using the items of pixel data extracted by the edge pixel extractor and for obtaining data values of multiple items of color data that constitutes the pixel data corresponding to the artificial image, based on the histogram;

extraction region selector for selecting an extraction region flag, said extraction region flag entering one state in accordance with the line where said artificial image is preset in the screen obtained by said input image signal; and

extractor for extracting pixel data, from items of pixel data that constitute a signal component of a current frame of said input image signal, of the line by which said extraction region flag selected by said extraction region selector enters said one state, said pixel data of the line being constituted of multiple items of color data, said multiple items of color data each matching a data value obtained by said histogram processor, as the pixel data corresponding to the artificial image.

2. The apparatus according to claim 1, wherein the detecting unit detects whether each pixel of a target position in a screen obtained by a signal component of a current frame of the input image signal is a pixel of an edge position corresponding to the artificial image, based on a pattern indicating a relationship in level among multiple items of pixel data positioned in the vicinity of a target position in each of the current frame of the input image signal and the frames thereof coming before and after the current frame in timing respectively.

3. The apparatus according to claim 1, wherein the detecting unit has:

a detection portion for detecting whether each pixel of a screen obtained by a signal component of a current frame of the input image signal is a pixel of an edge position of the artificial image based on a signal component of the current frame of said input image signal and signal

components of frames which are present before and after the current frame of the input image signal, said signal components of frames being motion-compensated by the motion compensation unit;

a counter portion including a counter corresponding to each pixel of a screen, said counter updating its count value in accordance with a decision of said decision portion on whether pixel is a pixel of the edge position of said artificial image: and

a binarizing processing portion for binarizing the updated count value of said counter corresponding to each pixel of the screen, said counter being present at the counter portion, to obtain an edge position flag as a decision result, said edge position flag indicating whether each pixel of said screen obtained by the signal component of the current frame of the input image signal is a pixel of the edge position of the artificial image.

4. The apparatus according to claim 1, wherein based on each item of the pixel data extracted by said edge pixel extractor, for each of the multiple items of color data, said histogram processor sub-divides the data value as a variable into a predetermined number of classes to create a histogram, said histogram using, as a frequency, the number of items of the data belonging to each of the classes and said histogram processor sets data value corresponding to a class, said class indicating maximum frequency for each histogram, to be data value of multiple items of color data that constitutes pixel data corresponding to the artificial image.

5.   The apparatus according to claim 4, wherein the histogram processor determines a width of the class of said histogram for each item of the color data based on a variance value of each item of said color data.

6.   The apparatus according to claim 1, further comprising data corrector for performing correction processing on first pixel data on an upstream side of the histogram processor, said first pixel data being extracted by said edge pixel extractor, said data corrector having:

storage unit for holding second pixel data serving as integration data;

data reader for reading the second pixel data written one frame before in timing out of said storage unit, said read second pixel data corresponding to the first pixel data, based on the information of moving distance output from said motion-information-outputting unit;

mixer for mixing said first pixel data and said second pixel data read out of said data reader, at a predetermined mixing ratio to obtain output pixel data; and

data writer for writing the output pixel data obtained by said mixer into said storage unit as said second pixel data.

7.   The apparatus according to claim 1, wherein said artificial image is a telop.

8.   An apparatus for extracting pixel data corresponding to an artificial image from an input image signal, said pixel data including multiple items of color data, said apparatus comprising:

motion-information-outputting means for outputting information of a horizontal moving distance in a line where the artificial image is present on a screen obtained from the input image signal;

motion compensation means for performing motion compensation on signal components of frames, which are present in timing before and after a current frame of the input image signal, based on the information of the moving distance output from the motion-information-outputting means;

detecting means for detecting each pixel of a screen obtained from a signal component of the current frame of the input image signal is a pixel that is present at an edge position of the artificial image, based on the signal component of the current fame of the input image signal and the signal components, which have been compensated in terms of motion by the motion compensation means, of the frames which are present in timing before and after the current frame of the input image signal;

edge-pixel-extracting means for extracting pixel data corresponding to the pixel of the edge position of the artificial image among items of pixel data constituting the signal component of the current frame of the input image signal, based on a decision result of the detecting means;

histogram-processing means for creating a histogram using the items of pixel data extracted by the edge-pixel-extracting means and for obtaining data values of multiple items of color data that constitutes the pixel data corresponding to the artificial image, based on the histogram;

extraction-region-selecting means for selecting an extraction region flag, said extraction region flag entering one state in accordance with the line where said artificial image is preset in the screen obtained by said input image signal; and

extracting means for extracting pixel data, from items of pixel data that constitute a signal component of a current frame of said input image signal, of the line by which said extraction region flag selected by said extraction-region-selecting means enters said one state, said pixel data of the line being constituted of multiple items of color data, said multiple items of color data each matching a data value obtained by said histogram-processing means, as the pixel data corresponding to the artificial image.

9.   A method for extracting pixel data corresponding to an artificial image from an input image signal, said pixel data including multiple items of color data, said method comprising the steps of:

obtaining information of a horizontal moving distance in a line on a screen obtained from the input image signal, said line including the artificial image;

performing motion compensation on signal components of frames, said frames being present in timing before and after a current frame of the input image signal, based on the information of the moving distance obtained at the information obtaining step;

detecting whether each pixel in a screen obtained from a signal component of the current frame of the input image signal is a pixel of an edge position of the artificial image, based on the signal component of the current fame of said input image signal and the signal components of the frames which are present in timing before and after the current frame of the input image signal, said signal components of the frames being motion-compensated in the motion compensation performing step;

extracting pixel data corresponding to the pixel of the edge position of the artificial image among items of the pixel data constituting the signal component of the current frame of the input image signal, based on a decision result at the detecting step;

creating a histogram using the items of pixel data extracted at said pixel data extracting step and, based on said histogram, obtaining data values of said multiple items of color data that constitutes the pixel data corresponding to the artificial image;

obtaining an extraction region flag which enters one state in accordance with the line in the screen obtained from the input image signal, said line including said artificial image; and

extracting pixel data of the line by which the extraction region flag obtained at the extraction region flag obtaining step enters said one state, said pixel data being constituted of multiple items of color data matching the data value obtained at the histogram creating step, among items of pixel data that constitutes a signal component of the current frame of the input image signal, as the pixel data corresponding to said artificial image.

10.   A program for causing a computer to perform a method for extracting pixel data corresponding to an artificial image from an input image signal, said pixel data including multiple items of color data, said method comprising the steps of:

obtaining information of a horizontal moving distance in a line on a screen obtained from the input image signal, said line including the artificial image;

performing motion compensation on signal components of frames, said frames being present in timing before and after a current frame of the input image signal, based on the information of the moving distance obtained at said information obtaining step;

detecting whether each pixel in a screen obtained from a signal component of the current frame of the input image signal is a pixel of an edge position of the artificial image, based on the signal component of the current fame of said input image signal and the signal components of the frames which are present in timing before and after the current frame of the input image signal, said signal components of the frames being motion-compensated in the motion compensation performing step;

extracting pixel data corresponding to the pixel of the edge position of the artificial image among items of the pixel data constituting the signal component of the current frame of the input image signal, based on a decision result at the detecting step;

creating a histogram using the items of pixel data extracted at said pixel data extracting step and, based on said histogram, obtaining data values of said multiple items of color data that constitutes the pixel data corresponding to the artificial image;

obtaining an extraction region flag which enters one state in accordance with the line in the screen obtained from the input image signal, said line including said artificial image; and

extracting pixel data of the line by which the extraction region flag obtained at the extraction region flag obtaining step enters said one state, said pixel data being constituted of multiple items of color data matching the data value obtained at the histogram creating step, among items of pixel data that constitutes a signal component of the current

frame of the input image signal, as the pixel data corresponding to said artificial image.

11. A storage medium in which stored is a computer program for causing a computer to perform a method for extracting pixel data corresponding to an artificial image from an input image signal, said pixel data including multiple items of color data, said method comprising the steps of:

obtaining information of a horizontal moving distance in a line on a screen obtained from the input image signal, said line including the artificial image;

performing motion compensation on signal components of frames, said frames being present in timing before and after a current frame of the input image signal, based on the information of the moving distance obtained at said information obtaining step;

detecting whether each pixel in a screen obtained from a signal component of the current frame of the input image signal is a pixel of an edge position of the artificial image, based on the signal component of the current fame of said input image signal and the signal components of the frames which are present in timing before and after the current frame of the input image signal, said signal components of the frames being motion-compensated in the motion compensation performing step;

extracting pixel data corresponding to the pixel of the edge position of the artificial image among items of the pixel data constituting the signal component of the current frame of the input image signal, based on a decision result at the detecting step;

creating a histogram using the items of pixel data extracted at said pixel data extracting step and, based on said histogram, obtaining data values of said multiple items of color data that constitutes the pixel data corresponding to the artificial image;

obtaining an extraction region flag which enters one state in accordance with the line in the screen obtained from the input image signal, said line including said artificial image; and

extracting pixel data of the line by which the extraction region flag obtained at the extraction region flag obtaining step enters said one state, said pixel data being constituted of multiple items of color data matching the data value obtained at the histogram creating step, among items of pixel data that constitutes a signal component of the current frame of the input image signal, as the pixel data corresponding to said artificial image.